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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/051,623	01/17/2002	Robert W. Bower	BOW5075.10A	1021

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09/05/2003

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EXAMINER

PERT, EVAN T

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 09/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/051,623

Applicant(s)

BOWER, ROBERT W.

Examiner

Evan Pert

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 49-82 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 49-82 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 49-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The scope of "acceptor centers" is confusing in view of applicant's response (Paper 7). Applicant's persuasion of argument relies on the relative position of "acceptor centers" in a base material to define a "contour."

Boron is clearly included as something that forms "acceptor centers" to define a contour in applicant's claimed invention. All Group III elements are also clearly included as elements that form "acceptor centers" in the claimed invention.

Yet, hydrogen-trapping centers of various kinds were known in the art before applicant's filing, which the examiner thought were also included in the scope of applicant's "acceptor centers" at the time of filing. For example, damage sites caused by Si implanted in Si was thought of as a way of creating "acceptor centers" when this case was initially examined.

While applicant clearly views “acceptor centers” as something particular that pulls in transported hydrogen, rather than any hydrogen-trapping site in general, the disclosure leaves “acceptor center” as an open-ended concept for “receiving transported hydrogen that was introduced spaced apart from the center.”

Based on applicant’s response (Paper 7), the “acceptor centers” of applicant’s invention do not actually encompass all hydrogen-trapping sites known in the art.

While Group III elements are understood as suitable for making “acceptor centers” in silicon, the examiner is confused about a clearly defined scope of applicant’s “acceptor centers”.

Applicant repeatedly uses the term “acceptor center” in the disclosure, claims and prosecution, as if scope should be readily understood [1st appears at Summary of Invention]. Yet, the examiner had originally thought of applicant’s “acceptor center” as including any site that can be considered as a hydrogen-trapping site.

Now, it seems, based on applicant’s argument that there is no mention of “acceptor centers” in the hydrogen-trapping-sites disclosure of Henley et al., there must be a special definition of “acceptor centers” for applicant’s claimed invention, which is unfortunately unclear from the claims and disclosure.

Is an “acceptor center” in the context of applicant’s invention the same as a site that creates what is known as a “hole” (i.e. a positive charge carrier)? ... As in notoriously well known “donors” and “acceptors” that make n-type and p-type semiconductor regions?

Correction and/or explanation are required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Product-by-process claims 49-82 are rejected under 35 U.S.C. 102(e) as being anticipated by structure disclosed in Goesele et al. (U.S. 5,877,070). See MPEP 2113.

The vast majority of limitations of pending claims 49-82 are “product-by-process” claims. The cancelled *process claims* have already been extensively examined in the parent case (09/476,456), and were allowed based on the way hydrogen is introduced to acceptor centers “spaced apart” before being transported to create a contour that can be expunged [see prosecution history and Reasons for Allowance in 09/476,456].

Per applicant (Paper 7), the pending product claims definitively include structural limitations that simply resolve into:

- A layer of material for use in connection with microcircuits;
- the layer having a surface contour defined by relative positions of a plurality of “acceptor centers”; and
- the layer is adapted for use in microelectronic circuits.

For purposes of examination, a “contour” is a “shape” (per Applicant in Paper 7). Therefore, the generally planar surface of a known SOI wafer is a “contour” because a generally planar surface is a kind of shape.

That is, a “contour” does not preclude a “generally planar surface” such as a generally flat surface of a notoriously well-known SOI (silicon-on-insulator) wafer.

Goesele et al. Discloses a generally planar layer of SOI material (i.e. that has a planar contour) expunged from a base substrate wherein the layer is adapted for use in connection with microelectronic microcircuits [i.e. the monocrystalline layer of silicon-on-insulator material per col. 1, lines 13-20 and lines 49-58] wherein a plurality of “acceptor centers” (i.e. boron implanted sites per col. 4, lines 10-20) defines a “contour” (i.e. the “contour” being a generally planar surface SOI wafer contour wherein the word “divides” of col. 1, line 17 is an expunging division along a generally planar contour).

Allowable Subject Matter

3. The following is a statement of reasons for the indication of allowable subject matter:

While the entire scope of “acceptor centers” is not yet clear in view of the pending rejection under 35 USC 112, the prior art does not disclose an expunged layer of material adapted for use in microcircuits wherein the layer has a generally **non-planar contour** surface defined by residually detectable “acceptor centers” wherein the “acceptor centers” at least include Group III elements implanted in silicon.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,352,909 is cited for referring to Goesele et al.'s invention as a "slight improvement" to the prior art [col. 1, lines 45-48].

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan Pert whose telephone number is 703-306-5689.

The examiner can normally be reached on M-F (7:30AM-3:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 703-308-1233.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

ETP
August 21, 2003


EVAN PERT